# GEOGRAPHIC NEWS BULLETINS

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**"AN ONION A DAY . . . ."**

**Apparently this young Zapotec woman at Oaxaca's market is not concerned about losing her sweetheart. Oaxaca is the capital of a southern Mexican state of 1,000,000 population (See Bulletin No. 1).**

### HOW TEACHERS MAY OBTAIN THE BULLETINS

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## Oaxaca, Home of Cochineal, Is Rocked by Earthquake

THE sharpest earthquake felt in Mexico in nineteen years shook the entire southern part of the Republic the middle of January.

Electric light and telephone lines were broken, and church bells were rung by land "waves" in Mexico City, Toluca, Vera Cruz, Tampico, Tehuacan, Ejutla, and other places. (See map on next page.)

Chief sufferer, however, was the City of Oaxaca (pronounced wah-háh-cah), in the Mexican state of the same name, 220 miles southeast of the City of Mexico. Many lives were lost and scores of buildings in the historic town were leveled.

Oaxaca, perched in a mountain depression a mile above sea level, is the rocking chair of Mexico. Earth tremors occur so often there that the houses are low and massive, with a more distinct Spanish-Moorish cast than those of any other Mexican city. Certain of its dwellings are fortress-like in character, designed to resist both earthquakes and mobs.

### One of Mexico's Beauty Spots

Despite its unsavory aspects, always quickest to get into print, Oaxaca is one of the most attractive and interesting cities of Mexico. Only thirty-seven years after Columbus sighted the New World a Spanish convent was established there, and its fine cathedral was founded in 1553.

Oaxaca has many plazas, palm-shaded, each with its fountain, and several green, tangled, flower-filled parks. Visitors to the residential districts glimpse delightful patio gardens through half-opened posterns. The church bells are soft and melodious, for Oaxaca was once the most godly see in New Spain, and the faithful were called to prayer by bells of gold and silver. The streets are largely paved with cobbles of colonial times, and there are legends everywhere. A daughter of Montezuma—a great-great-granddaughter, of course—still lives, it is whispered, in Oaxaca.

### Secret Sources of Gold!

No state in Mexico was richer in precious metals when the Spaniards came. It is rich even yet, for its mines have scarcely been tapped. Hardly a day passes that some family of Indians does not drift in from the bush with raw gold to sell. The Indians never tell where they find the metal. Their experience in generations past has at least taught them to hold their tongues.

Treasures are often found in the walls of old houses in Oaxaca. The priests and friars, faithful to their trust, concealed gold and silver vessels during insurrections in the past. One by one these custodians died and the knowledge of the hiding places died with them. From time to time an old house is torn down, or crashes in an earthquake, and in the crumbling brick walls the forgotten gold is found. Perhaps, when the ruins left by the recent earthquake are sifted, more hidden gold will be brought to light.

### Governs Area Equal to Indiana

Oaxaca is the capital and commercial center of a Mexican state about equal in area to the State of Indiana. The city is connected by railway with Mexico City, and by numerous roads and trails with hundreds of villages and hamlets in its own state.

The City of Oaxaca has only about 40,000 inhabitants, but the state it governs is estimated to contain almost a million people, most of them Indians of the Mixtec and Zapotec tribes.

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**LARGER THAN SEVERAL LAKEHURST HANGARS**

**"The Big Room" in Carlsbad Caverns is almost a mile long, 600 feet wide and, in one place, 300 feet high. Notice how tiny the tourists appear in this illustration. How many people can you find? (See Bulletin No. 5).**

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## Australia's "Middle West," a Land of Pink Lizards and Sexennial Grass

A GOLD-SEEKING expedition, which has just returned to Adelaide from a fruitless 3,000-mile search of the central Australian plains, reports that while no gold was found the expedition ran into some of the finest grazing land in Australia about 300 miles north of the transcontinental railroad. Several grazing stations of 500,000 acres each could be established in this great grassland area, the leader of the expedition says.

It is probable, however, that the grasslands were "discovered" because rain has recently fallen in central Australia—a land normally "dry" for five years of each six. Taking advantage of the new grass, a herd of 60,000 head of cattle is now being driven southward from northern Australia by aboriginal black herdsmen. In 1921 a herd of 73,000 cattle began a journey to the southern markets which took more than two years.

### Australia's "Dead Heart"

Much of the southern half of Australia's great "Middle West," a land as expansive as our own, is given over to rolling sand hills and shallow salt lakes. Lake Eyre, best known of these brackish puddles, might be called Australia's "Great Salt Lake." It is located about 250 miles southeast of the geographical center of the continent and because of its desert surroundings has been called "Australia's dead heart."

The lake and its immediate surroundings constitute the only area in Australia that lies below sea level. Its shore line is 39 feet lower than the ocean waters that surround the continent. The bottom of the lake can be considered with little error as at the same level, for Lake Eyre is in reality only a tremendous salt flat, covered from time to time with a few inches of water. It becomes a lake after droughts are broken by unusual rains in the remote Queensland plains, so that floods rush down the usually dry river courses that lead to this closed basin. But quickly the shallow covering of water evaporates and the "lake" becomes first damp and then dry.

Near the shore the lake bed consists of a thin salt crust underlain by dry gypsum sand from a few inches to a foot in depth, with damp clay beneath. Farther from the shore the salt crust increases in thickness, reaching 17 inches at 12 miles out, the greatest distance yet penetrated. This crust is pinkish. When dry it buckles up so that slabs lean against each other like children's card houses.

### Pink Lizards Live in the "Lake"

A surprising discovery on the bed of Lake Eyre was the existence of colonies of ants some distance from the shore. Lizards half a foot long scamper over the surface as far as five miles from the shore. They are pinkish gray, the exact color of the salt crust.

Along the western margin of Lake Eyre are "mound springs" which apparently are natural outlets from the artesian waters that underlie large sections of Australia. As the waters bubble up they bring large amounts of mineral matter which are precipitated, building up roughly circular dykes. Eventually, elevated mounds are created which contain in their tops little pools of water.

By means of airplanes the uninhabited, formerly unknown region north of

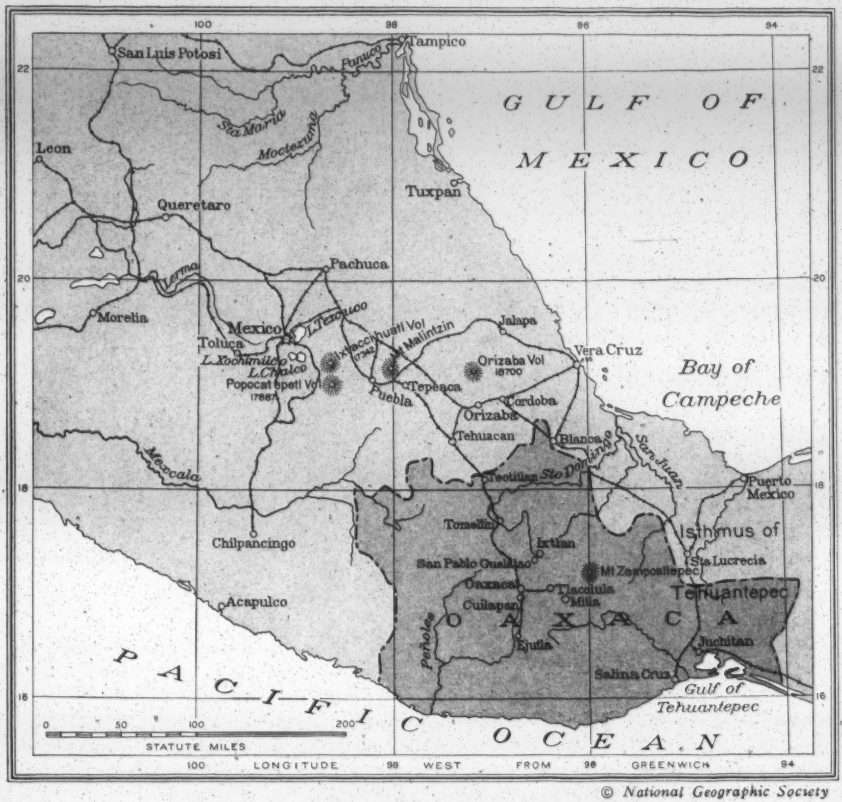
The Mixtec and Zapotec Indians are among the most distinctive in North America (see cover illustration). Their eyes have a distinct oriental slant, leading to the belief that their forbears were in some way linked with the Mongols of Asia. These Indians make beautiful wool serapes, or scarfs, on primitive looms. They are skilled basket weavers, and makers of delicate filigree work in 24-karat gold.

### Home of Cochineal

Most unusual of the Oaxaca native industries, however, is the gathering of cochineal. Oaxaca claims to be the original home of these tiny insects, which thrive on the broad, spiked leaves of the cactus plant. Indians gather the cochineal during the dry season, sweeping the insects into a bag with a brush. Killed by quick immersion in boiling water, or by baking, and thoroughly dried in the sun, the cochineal yields the vivid red dye which is the envy of the modern chemical industry.

Note: See, also, "North America's Oldest Metropolis," July, 1930, *National Geographic Magazine;* "Among the Zapotecs of Mexico," May, 1927; "Buenos Aires to Washington by Horse," February, 1929; "Chichen Itzá, an American Mecca," January, 1925; "The Isthmus of Tehuantepec," May, 1924; "Ruins of Cuicuilco," August, 1923; "Along the Old Spanish Road in Mexico," March, 1923, and other articles which may be found by consulting the Cumulative Index to the *National Geographic Magazine* in your school or community library.

**Bulletin No. 1, February 9, 1931.**

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**SCENE OF THE RECENT MEXICAN EARTHQUAKE**

**The State of Oaxaca, an area about equal to that of the State of Indiana, is rich in natural resources, most of which are still undeveloped. Oaxaca is the home of cochineal, a tiny insect from which vivid red dyes are obtained by the Indians. This dye they use in coloring the serapes, or shawls, for which the district is noted.**

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## Rear Admiral Byrd's First Flights in the Far North

THOUSANDS of school children who are writing letters on the life and achievements of Rear Admiral Richard E. Byrd find that the aerial conqueror of the North and South Poles made a preliminary trip in 1925 to the polar regions, where he was the first to take aviation conditions in the Far North out of the column of the unknown. As the commander of the U. S. Navy Aviation Unit with the MacMillan Expedition, Admiral (then Commander) Byrd learned facts of value to all future aviators in polar regions. This early experience in Arctic flying, he has said, was essential to the success of his subsequent polar flights.

The MacMillan Expedition, in which the National Geographic Society and the U. S. Navy cooperated, reached Etah, an Eskimo hamlet far up the western coast of Greenland, on August 2, 1925, with the first heavier than air machines ever to penetrate far northern regions.

### Runways of Wing Crates

Three amphibian planes, a type that could be landed on water, smooth ice, or land, had been chosen to test Arctic flying conditions. All the rest of the expedition party, including Commander Donald B. MacMillan, the scientists and photographers, and the native Eskimos, assisted in landing the airplane parts and in building runways with the wing crates on the rocky beach.

But the expedition had been delayed by ice and fog so long on the journey north that only fifteen days of "summer" remained in which to accomplish the mission of the party—to fly westward in search of the mysterious Crocker Land. Of those fifteen days only three and three-quarters days were good for flying; two were fair flying days and one was indifferent. Yet the three planes flew more than 6,000 miles—5,000 of which were in long distance flights from Etah. The flyers saw more than 30,000 square miles from the planes, a large part of which, being inaccessible to foot travelers, had never before been seen by human eye.

Crocker Land, or its supposed vicinity (since proved to be non-existent) was never reached, but flights were made over Smith Sound to Ellesmere Land, and even as far west as Eureka Sound, bordering Axel Heiberg Island.

### Greenland's Ice Mountains

One of the most thrilling experiences of Commander Byrd and his fellow flyers was the flight over the great Greenland ice-cap. On a day of remarkable visibility they took off from the beach and flew directly over Verhoeff Glacier, mounting gradually to an elevation of 11,000 feet, from which height the ice-cap could be seen in every direction. It was found that one area to the east attained an elevation equal to that of the plane itself—a greater altitude than had ever been reported for this huge sheet of solid ice.

Commander Byrd, on this expedition, used for the first time the sun compass invented by Albert H. Bumstead, Chief Cartographer (map designer) of the National Geographic Society. The Bumstead sun compass has since been used on all important flights in polar regions. The sun compass is of great value in the Far North and the Far South due to the variations of the magnetic compass.

One of the most important discoveries made by Commander Byrd on this trip was that much of the polar sea region is so full of floating ice in "summer" that neither a boat-bottomed nor a wheeled plane can alight there without disaster.

Lake Eyre has also come to be known. Effort after effort was made in the past to enter this region but it was found impossible to penetrate it, even with camels which have conquered many of the out-of-the-way sections of Australia. The area is waterless and is covered with parallel sand hills hundreds of miles long and only a few hundred yards apart. The hills are from 50 to 100 feet high and so steep on one side that even an unladen camel can climb over only a few of them. From the air the region has the appearance of a vast field furrowed by a Titanic plow.

Note: Two articles for supplementary reading and reference material about little-known sections of far-away Australia: "The Great Barrier Reef and Its Isles," September, 1930, *National Geographic Magazine*, and "Australia's Wild Wonderland," March, 1924. For other data and illustrative material consult "Sailing the Seven Seas in the Interest of Science," December, 1922; "From London to Australia by Aëroplane," March, 1921, and "Lonely Australia, the Unique Continent," December, 1916, *National Geographic Magazine*.

**Bulletin No. 2, February 9, 1931.**

© *Photograph by H. E. Gregory*

**YOU CAN'T SINK IN AUSTRALIA'S SALT "LAKES"—YOU CAN WALK ON THEM!**

**Lake Hart, above, is typical of the many brackish areas in south-central Australia. Only when rains deluge neighboring territory is there any water at all in these "lakes," and even then the depth does not exceed a few inches. Most of the time the top-surface is cracked into huge pink slabs, on which lizards of the same color, and ants, are the only living things.**

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## Mid-Ocean "Airport" Visited by Royalty

THREE times the peaceful "Summer Isles" of Bermuda have come into the newspaper headlines lately. First, when an announcement was made that an oceanic air mail service was planned by British and American companies, with Bermuda and the Azores the two airports. Second, when the seaplane "Tradewind" reached it in a hop from the United States, and later was lost on the second lap of trans-Atlantic flight between Bermuda and the Azores. Third, when the Prince of Wales, and his brother, Prince George, stopped there to play golf on their voyage to Buenos Aires, where the British princes will open a trade exposition.

The British heir to the throne, himself an airplane enthusiast, is visiting the Bermudas by steamship. This is the time-honored method of reaching the islands, almost 600 miles due east of the Carolinas. But, as the Bermudas and the Azores provide the shortest obtainable hops between North America and Europe, these quiet holiday lands may become important air stations, if trans-Atlantic airplane travel proves practical and profitable.

When airplanes glide in and out of the Bermudas the islands will have plunged point-blank from the bicycle era into the airplane age of transportation, without the middle stage of automobiles, since all motor vehicles are now tabu.

### Discovered by Shipwreck

Formerly the tiny land dots were known as the "Isles of the Devil." They were shunned by seafarers; not sought as a refuge. In fact, they were discovered unwittingly by Juan de Bermudez when he was shipwrecked upon them. "The Summer Isles," the natives now call them, but the quiet, quaint tourists' haven owes its existence to one of Nature's most violent forces—the volcano.

The islands are projecting peaks of a mighty, submerged, extinct volcano, based on the ocean floor, 15,000 feet below the surface; and, if the water were drained off the mountain would be another Mont Blanc, like that in Europe. Instead of snow, this mountain is crowned with a layer of coral which, through the ages with the help of sea and wind, has gradually built up low, white limestone hills. Since the Titanic disturbance which created it, the volcano has settled slowly so that in places the coral is just below the water, forming a ring of treacherous reefs, and the famous marine gardens.

The islands are arranged like a giant fishhook, 580 miles from Cape Hatteras. On approaching land a steamer picks up a pilot, then turns completely around and doubles back on its track. Actually, the vessel is proceeding through a narrow opening in the outer ring of reefs and is picking a course slowly inside, following the shore line. Whitish patches on the turquoise waters indicate coral shoals.

### Harbor Snug Fit for Ship

Once inside the harbor of Hamilton, capital of Bermuda, the vessel is turned around and moored to the dock. So narrow and tiny is this harbor that it seems as if the bow and stern would touch the banks as the ship is warped around. From the decks passengers look down on the little village as if from a tower. Lines of carriages, once the pride of Fifth Avenue, are drawn up, natives with bicycles stare at the ship and the life of the town in general seems to stop and gather to see the event of the week, the arrival of the mail packet!

Clean, little two-story houses, as white as the icing on a cake, according to

In his North Pole and his South Pole flights Byrd employed skis, and made his takeoffs from snow.

### Plane Takes Fire!

Once, when gasoline around a supply ship took fire, the flames spread to the NA-3, one of the planes. But two of the men on the ship cast the plane adrift, and another showed great calmness and judgment in procuring a fire extinguisher and throwing it to one of the men in the flaming plane. As a result all but the wings of the plane were saved.

The best of the school children's letters to Admiral Byrd, which are being encouraged by school superintendents and teachers, will be presented to the explorer while he is a guest of the National Education Association in Detroit, February 21-26.

**Bulletin No. 3, February 9, 1931.**

Note: For illustrated accounts of his four major expeditions see articles by Admiral Byrd in the following issues of the *National Geographic Magazine*: "The Conquest of Antarctica by Air," August, 1930; "Our Transatlantic Flight," September, 1927; "The First Flight to the North Pole," September, 1926; and "Flying over the Arctic," November, 1925.

*© Photograph by Richard E. Byrd, Jr.*

**"GREENLAND'S ICY MOUNTAINS" FROM 1,500 FEET UP**

**One of Rear Admiral Byrd's most exciting experiences was a flight in 1925 over the great Greenland ice-cap. This expedition, sponsored jointly by the National Geographic Society and the U. S. Navy, marked the first use of airplanes in the polar regions. The illustration, snapped by Admiral (then Commander) Byrd, shows a jagged section of the Verhoeff Glacier, northern Greenland. A forced landing here would have meant death!**

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## Longest Elevator Run for—New York? No—Carlsbad Caverns

NEW YORK CITY has just been challenged in a field in which it has long been supreme. The National Park Service of the Department of Interior announces that it has just let the contract for the longest passenger elevator in the world—a single lift of 750 feet, or 250 feet higher than the Washington Monument.

This breath-taker has another distinction. Whereas most elevators start from the surface of the earth and rise to higher levels, the new 750-foot lift will be dropped into the depths of the Carlsbad Caverns, New Mexico, which not long ago was made a national park.

### Walk down; Ride up

Engineers claim that it will be possible to make the 750-foot trip from the surface to the floor of the upper levels of the cave in one to two minutes, traveling about as far underground in that time as the elevators in the Woolworth and Chrysler buildings in New York travel above the ground. The elevators in these Gotham giants, however, do not operate in single lifts.

At present the upper levels of the caverns, located 750 feet below the natural cave entrance, are reached only by a series of stairways and footpaths. When the elevators are installed they will not replace the trip from the natural entrance but will afford another exit from the cave. The purpose of the modern elevators is to induce those who now find the return climb too strenuous to see this greatest of Uncle Sam's underground wonders.

### The End Is Not Yet

Although more than 25 miles of underground passages have been explored, the end of the caverns is yet to be reached. Each year intrepid government explorers take lines of white cord (to trace their return trip) and extend the known trails a bit farther, but no one knows how far they eventually will go.

Seven miles of the upper levels of the caverns have been made accessible to visitors through the construction of trails and stairways and the installation of flood-lighting. Several hundred feet below the upper levels lies another series of caverns reached only by long stepladders, and not yet open to the public.

Most famous of all the Carlsbad Caverns chambers is the so-called Big Room, a vast underground space almost a mile in length and 600 feet wide. In one place its ceiling looms 300 feet overhead.

### A Gretna Green in Cavern

The Big Room is probably as remarkable for ornate decoration as it is for size. Some of its drip stone pendants are so delicate and slender that they break under the slightest pressure; some so massive that one marvels that the enormous weight is sustained.

One huge monolith is known as the "Rock of Ages," and since the caverns have been a national park this stone steeple has become a sort of Gretna Green. A number of marriages have been celebrated before it, among them that of a young woman who promised her mother "not to marry the best man on earth!"

**Bulletin No. 5, February 9, 1931.**

Mark Twain, dot the rolling hillside around the harbor amid dark green native cedars, palms and gardens. Tall American-looking hotels and the Hamilton Cathedral break the sky line.

### Houses Sawed from the Back Yard

Bermudans either farm or cater to tourists, who consist principally of Americans. Easter lilies are the best known export. Early vegetables are shipped in large quantities, especially onions. Practically all government revenues are collected from the customs duties on imported articles.

Houses are built by sawing blocks of white limestone from a quarry near the house site and fitting them together. Even the smooth, sloping roofs are made of limestone slabs which harden when exposed. Because of the porous soil there are no rivers or springs in Bermuda and therefore every house is required by law to make of the roof a rain catch, adequate to supply the water needs of its occupants.

**Bulletin No. 4, February 9, 1931.**

Note: See also "The Island of Bermuda," January, 1922, *National Geographic Magazine.*

*© Photograph from S. S. Spurling*

**FISHERMEN'S LUCK IN BERMUDA**

**Bermuda and Florida have this in common—each is a fisherman's paradise. Those who are not disciples of Izaak Walton will find in the colorful sea gardens of the coral reefs much to interest and delight them. Bermuda is the oldest British colony in the New World, having been founded in 1610.**

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THESE ARE NOT ROCKS, BUT ANT NESTS

**Best-known, and best-hated, of all Australian forms of life is the white ant, an insect of unusual destructive talents. Supports of houses must be protected against it by caps of iron, and, according to some reports, it devours lead pipes and boxes. The queer moundlike nests are as firm as wood, and sometimes attain heights of 6 to 10 feet (See Bulletin No. 2).**

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